

WHAT IS CLAIMED IS:

1. A magnetic bearing assembly, comprising:

a magnetic portion connected to a shaft and a base for generating a repulsive magnetic field; and

5 a bearing portion connected to said shaft and said base for supporting said shaft upon rotation of said shaft.

2. The magnetic bearing assembly according to Claim 1, wherein said repulsive magnetic field is one of a radially repulsive magnetic field and an axial repulsive magnetic field.

10 3. The magnetic bearing assembly according to Claim 1, wherein said magnetic portion includes an upper magnetic portion and a lower magnetic portion.

4. The magnetic bearing assembly according to Claim 3, wherein said upper magnetic portion and said lower magnetic portion are disposed
15 symmetrically and each includes a first magnetic ring, a second magnetic ring and a third magnetic ring.

5. The magnetic bearing assembly according to Claim 4, wherein said first magnetic ring and said second magnetic ring are connected to said shaft and said third magnetic ring is connected to said base.

20 6. The magnetic bearing assembly according to Claim 4, wherein said second magnetic ring and said third magnetic ring are disposed in radial alignment with each other to have like polar disposition.

7. The magnetic bearing assembly according to Claim 4, wherein said first magnetic ring and said second magnetic ring are disposed in axial
25 alignment with each other to have opposite polar disposition.

8. The magnetic bearing assembly according to Claim 3, wherein said upper magnetic portion includes an inner magnetic ring and an outer

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magnetic ring and said lower magnetic portion includes a first magnetic ring, a second magnetic ring and a third magnetic ring.

9. The magnetic bearing assembly according to Claim 8, wherein said inner magnetic ring and said outer magnetic ring are disposed in radial alignment with each other to have like polar disposition.

10. The magnetic bearing assembly according to Claim 8, wherein said first magnetic ring and said third magnetic ring are connected to the shaft and said second magnetic ring is connected to said base.

11. The magnetic bearing assembly according to Claim 8, wherein said first magnetic ring, said second magnetic ring and said third magnetic ring are disposed in radial alignment with each other to have opposite polar disposition.

12. The magnetic bearing assembly according to Claim 1, wherein said bearing portion is a sleeve bearing.

13. The magnetic bearing assembly according to Claim 1, wherein said base is a stator of a motor.

14. A magnetic bearing assembly, comprising:

a magnetic portion having a plurality of magnetic rings capable of generating therebetween a repulsive magnetic field; and

a bearing portion having a sleeve bearing connected to a shaft and a stator of a motor.

15. The magnetic bearing assembly according to Claim 14, The magnetic bearing assembly according to Claim 1, wherein said repulsive magnetic field is one of a radially repulsive magnetic field and an axial repulsive magnetic field.